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## Working Paper

**Next to the Customer's Heart and Wallet: Frameworks for  
Exploring the Emerging M-commerce Arena**

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### ABSTRACT

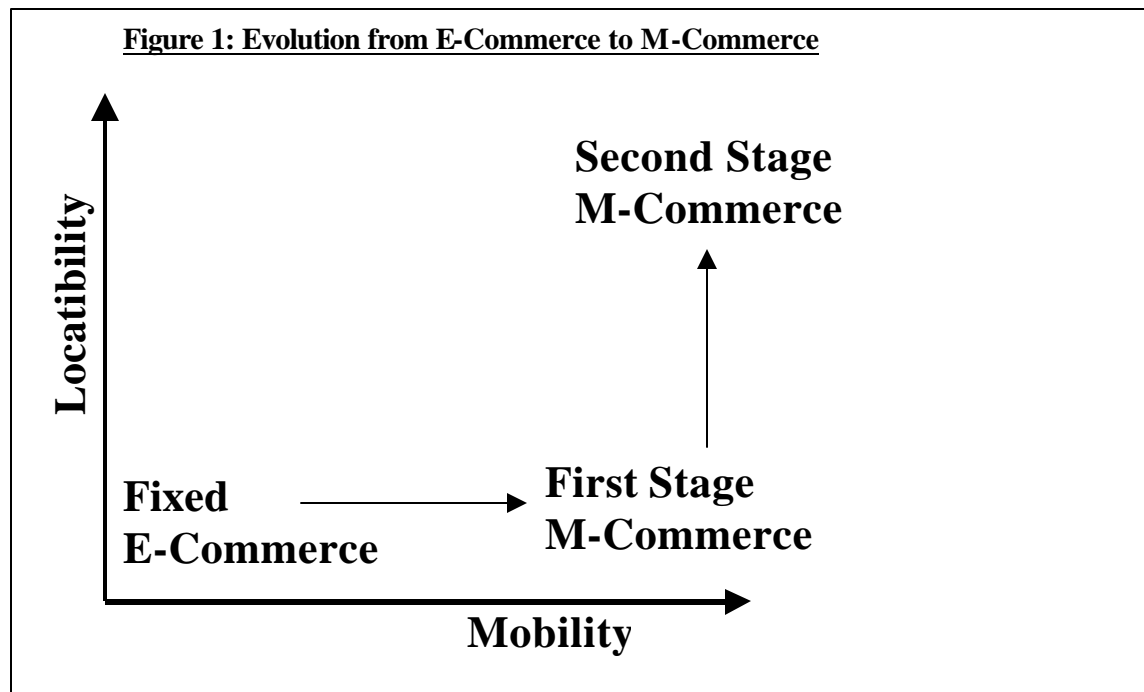
M-commerce is any monetary transaction conducted via a mobile telecommunications network using a communication, information, and payment (CIP) device such as a mobile phone or a palmtop unit. USA has been the leader in e-commerce but Europe and Japan appear to have the early leadership in m-commerce. The main distinction between m-commerce and e-commerce is that the typical e-commerce customer counts the money while the typical m-commerce customer counts the minutes. Additionally, e-commerce is based upon fixed location whereas m-commerce is based upon ubiquity. E-commerce companies will not necessarily be the ones that drive m-commerce. We foresee three main areas of impact of m-commerce on marketing and competition. First, there will be greater levels of customization or one-to-one marketing via m-portals. Such m-portals will integrate the m-Brochure, the m-Manual, and the m-Store – three progressively stronger formats for conducting m-commerce activities. The second impact will be the blurring of boundaries between consumer and business-to-business marketing. Because of such blurring, segmentation in terms of roles (off- or on-duty) and location (home, office or elsewhere) will be very important. The third impact is the likelihood of transformation of industry structures. The main managerial implication of m-commerce is that firms that do not become m-portals will end up being sub-suppliers to the m-portals. These sub-suppliers will have to develop finely targeted strategies for their m-commerce applications. We foresee potential research implications in each of three parallel and interrelated areas: 1) Studies of one-to-really-one integrated applications, 2) Study of usage patterns in different locations and 3) research on Industry transformations and the ensuing competitive impacts.

**Keywords:** M-commerce, e-commerce, portals, Europe, USA, one-to-one marketing, competition, boundary of firm, telecommunications, financial services

## Next to the Customer's Heart and Wallet: Frameworks for Exploring the Emerging M-commerce Arena

### INTRODUCTION

Mobile Commerce or M-commerce is any monetary transaction conducted via a mobile telecommunications network (Müller-Veese 1999). Already popular in Europe, examples include paying at an automatic car wash with a mobile phone or to use such a



phone to buy and dispense a can from a soda machine (Bottomley 2000). M-commerce is e-commerce where the medium of communication and transaction is the mobile telecommunications network, Internet-based or not, instead of the fixed-line Internet-based network.

This paper presents frameworks for exploring the impact of m-commerce on market structures and marketing processes. There are five main parts to the paper. First, the main distinctions between m-commerce and e-commerce are drawn. Three parts that discuss the main areas of impact of m-commerce are presented next: (1) greater levels of customization or one-to-one marketing, (2) the blurring of boundaries between consumer and business-to-business marketing, and (3) likely transformation of industry structures. We conclude by drawing some of the implications of m-commerce for marketing management and for research in the fields of marketing and e-commerce.

### M-COMMERCE vs. E-COMMERCE DISTINCTIONS

While m-commerce and Internet-based e-commerce are very similar, there are some important distinctions. These distinctions arise from two dimensions on which m-commerce holds advantages over e-commerce. These are "mobility" and "locatability." While palmtop devices and mobile phones offer mobility, it is the combining of these with mobile data

networks and geographical positioning systems that begin to distinguish m-commerce from e-commerce (see Figure 1). As Figure 1 shows, m-commerce is likely to evolve first by increasing the mobility of the user and then creating specialized services that take advantage of the locatability of the user. We focus on four main distinctions that create some separations between e-commerce and m-commerce.

**Counting Money vs. Counting Minutes**

The initial, preexisting customer orientations for e-commerce and m-commerce are different. E-commerce started with individuals who had come to regard content on the Internet as free. When e-commerce requiring payment for purchases emerged, it encountered consumers who offered resistance to payments. Used to the free Internet model, when they were forced to pay, these consumers were generally very price conscious. The typical e-commerce customer counts money. M-commerce customers, on the other hand, have been used to relatively expensive phone calls on their mobile phones compared to fixed-line phones. They value mobility so highly that they are willing to pay the extra cost. They regard the mobility feature of the cellular phone as a time saving feature (Cairncross 1997). The typical m-commerce customer therefore is one who counts the minutes – s/he wants the right products and services at the right time.

**Fixed Location vs. Ubiquity**

E-commerce focuses on getting closer to the customer in terms of eliminating geographical as well as psychological distances in order to establish a one-to-one relationship. M-commerce seeks to get even closer to the customer by bridging not just geographical and psychological separations but also overcoming the asynchronous separation – the separation in time – that often occurs in fixed-location Internet commerce.

**Table 1: Characteristics of Technology-enabled Distance Shopping Methods**

	<i>Tele-shopping</i>	<i>E-commerce</i>	<i>M-commerce</i>
Infrastructure	Telephone system	World Wide Web	Mobile phone system
Location	Home	Home or work	Everywhere
Decade	1980s	1990s	2000s

Table 1 sketches the evolution of distance shopping over the past several years. It shows the ubiquitous location of m-commerce activities. Such ubiquity will have a major impact on the marketing field, an issue we will address in the next section.

**USA vs. Europe (and Asia)**

The third difference between e- and m-commerce is that Europe is leading the m-commerce development whereas USA has led in e-commerce. There is, of course, some economic, technological, and social validity to Europe's leadership in the m-commerce field. In addition, there are also interesting elements of global competitive rhetoric. The views and

stories pertaining to Europe's and even Asia's leadership over USA in the fields of mobile communications and m-commerce receive considerable play in the media, especially the British media (Economist 2000, Financial Times 2000a, Financial Times 2000b, Hafner 2000, Prodi 2000, Safire 2000). Important cross-national lifestyle differences based on "mobile" devices are already beginning to emerge. Finland and Japan, for example, are already regarded as leading-edge exemplars of mobile lifestyles (Baker 2000, Kunii 2000).

### **"Old" vs. New Leaders**

While e-commerce can hardly be characterized as "old," nonetheless we may see changes in industry leadership along two dimensions: from U.S. firms to European firms, and from "new economy" firms to some of the older economy firms. Companies that have been seen as the providers of technologies that enable e-commerce – Sun Microsystems, Cisco Systems – are USA based while the key enabling technologies for m-commerce are being pioneered by European firms. European mobile phone infrastructure and handset producers Nokia (1999), and Ericsson (Erlanson and Ocklind 1998) are in the forefront and are supported by a host of mobile network operators and service providers who see opportunities. In mobile networks, UK-based Vodafone has emerged as the global leader. In m-commerce, mobile operators see opportunities for becoming quasi-banks, which is why banks are also focused strongly on m-commerce opportunities. Since very little research on m-commerce exists, mobile technology providers, service providers, and banks are also emerging as the main sources of information and expertise about m-commerce.

This paper presents frameworks to explore the changes in marketing strategies and industry structure that can be expected when the dust settles and the hype about e-commerce and m-commerce has subdued to a more realistic level. Our core assumption (and a premise) is that in the near term m-commerce will be based on the mobile Communication Information and Payment (CIP) devices such as smart phones or palmtop units. We see three parallel, interrelated, coherent scenarios:

1. **ONE-TO-REALY-ONE MARKETING:** The emergence of a more focused, tighter one-to-one marketing perspective where the marketer is forced to understand the customer as an individual and therefore to customize the products and services in greater detail than is the case in typical e-commerce.
2. **BLURRING OF PERSONAL AND BUSINESS BOUNDARIES:** New opportunities will emerge for marketers to enhance the products/services according to the actual locations of customers. The more advanced forms of m-commerce systems enable the geographic positioning of the customer, thus allowing marketers to offer products and services that interact with or take advantage of the features inherent in the user's positional setting. A corollary of this scenario is that m-commerce creates and at the same time blurs the distinction between consumer and business-to-business marketing. In other words, the boundary of the firm becomes fuzzy as individuals negotiate various spaces – office or factory, home, and public space – with their m-commerce enabled CIP devices.
3. **TRANSFORMATION OF INDUSTRY STRUCTURES:** Finally, in the longer run, we expect to see the structure and competitive landscape of telecommunications, financial services, and related industries reconfigured in order to take advantage of new market opportunities or to cope with new competitive challenges.

### **ONE-TO-REALY-ONE MARKETING**

The mobile CIP device is a perfect platform for delivering one-to-one marketing. Mobile firms can link stated individual characteristics with a user-centric database. Such linking can extract not only all the demographic data of the subscriber can also build a data profile with lots of information about that user's calling patterns. Additionally, by providing a mobile portal, the network operator can get even more information on its subscribers. Users can be requested to input their preferences and information needs so as to receive personalized, and thus more valuable, information. Finally, with the use of mobile positioning technology, the network operator can identify the locations of the subscribers and thus tailor services to the characteristics of these locations.

Personalization is about creating services that craft the end-user experience to fit needs of the individual subscriber. An intelligent personalization platform must be able to learn from both user preferences and past behavior of the user. The application must be personalized enough to optimize the interaction path, enabling users to reach the services they want with as few clicks as possible, and presenting information in a compact form optimized for the CIP device. Additionally it is important to emphasize that the very same CIP device that enables access and interaction also serves as the customer's wallet (Müller-Veerse 1999).

Thus, m-commerce applications not only provide information and services but also enable payments. Such applications cover a broad range – from paying with the CIP device for a train ticket or a car wash to managing the product flow and inventory at an assembly line. In other words, the CIP device will make it possible for the marketer to be at the *place where* and at the *time when* the customer needs the service. Such service could be targeted to the personal needs of the user or to the user as a member of an organization.

In other words, more than anything else, the CIP device will eliminate distances. In the following paragraphs, we examine different types of m-commerce applications. We group the applications into three categories: the brochure, the manual, and the store (Rask 1999). The "brochure" is an application that primarily provides information and evolves along a communicative trajectory. The "manual" is a CIP-rendered service and support application and evolves by increasing the level of customer support. The "store" is a CIP-based transactional application and evolves by increasing the breadth and depth of m-commerce transactions. With the emerging m-commerce possibilities in view, we discuss these three archetypes along with the archetype that has come to be known as a "portal."

### **Brochure**

When using the Mobile Brochure strategy, the marketer aims to provide needed information to the mobile customer. The marketer expects the customer to retrieve the information and hopes that the customer will contact the marketer for other businesses. Compared to typical e-commerce, the m-commerce brochure can reach the customer everywhere.

An illustrative example of this is AvantGo.com. The AvantGo mobile Internet service makes their Personal Digital Assistant (PDA) channels available for Web-enabled mobile phones. With AvantGo.com, customers can browse their favorite websites on their CIP devices or download over 350 content channels that have been specially optimized for the smaller screens of the CIP devices. The channels include news, stock quotes, flight schedules, movie listings, restaurant reviews, maps, and weather.

There are critics of this approach. Web Design expert Jakob Nielsen does not believe in such “brochure” applications and calls the Wireless Application Protocol (WAP) the “wrong approach to portability.” His main argument is that the small screen on the mobile phone “cannot show any context, nor can it show menus or visualizations of alternatives.” Furthermore, in terms of the keyboard, the “telephone push-buttons are poor controls for advanced functionality - as evidence just consider how few of the features on your cell phone you use...” Nielsen would rather like to see the phones have a PDA-like user interface (Nielsen 1999).

Even though this skepticism regarding the screen sizes of tiny mobile phones is valid, it is important to recall that a driving force of m-commerce is likely to be the unprecedented level of personalization. Users can define the breadth and depth of information that they are likely to need when they are mobile. Also, marketers can use the opportunity for getting the location of the customers and utilize the positional information to personalize the message. For example, only the flights to and from the nearest airport and the weather, restaurants, and maps only for the area where a user is at the moment can be provided through the CIP device.

The first industry players we are likely to see in the m-commerce arena are companies that already provide customers with such information on the Web. These firms will be “versioning” their information content for the WAP platform and try to set low (near zero) prices in order to keep high entry barriers for other potential entrants (Shapiro and Varian 1998).

Overall, the focus of the m-commerce brochure applications will be on customers who value the convenience of short, precise, and highly customized information delivered at the right time and place.

## **Manual**

When using the m-commerce “manual” strategy, the marketer tries to guide the customer in using the marketer's products and services. The expectation is that customers that receive precise guidance where and when they need it will experience great satisfaction with the marketer providing such guidance. A well-designed m-commerce “manual” strategy relieves the pressure on the service and support staff of the marketer and makes it possible for the marketer to be virtually “present” next to the customer 24 hours a day.

OracleMobile at [www.oraclemobile.com](http://www.oraclemobile.com) incorporates all the elements of an m-commerce “brochure” and also provides an illustration of an effective m-commerce “manual”. For example, in partnership with UPS, Oracle offers the “OracleMobile Package Tracking services.” This service provides users with status updates on their CIPs about the packages they have shipped and notifies them when their packages are delivered.

Other m-commerce “manual” applications could include company directories, dictionaries and definitions, driving directions, product manuals, help files, and FAQs. In fact, early m-commerce “manual” applications will be those where the customers can benefit from support in “field” situations. Companies likely to pioneer in this area will be those that need to deliver 24-hour services to customers who are not connected to fixed-line Internet terminals when they need the services.

The early focus of such m-commerce “manual” services is likely to be on blue and white-collar workers who have vehicle and airline based jobs. They will use the CIP device to be guided irrespective of their location or the time of day when service is needed.

## Store

When using the m-commerce “store” strategy, the marketers aim to persuade the customers to use or buy their products and services. The CIP device will then be the brochure, the store, and wallet at the same time. In this way, the market possibilities do not depend on the locations of the marketer or the customer.

E-commerce pioneer-leaders like Amazon.com have already rolled out their m-commerce “store” strategies. Table 2 shows the main FAQs on the Amazon.com Anywhere site and the nature of answers. It is evident that, in its current state, the Amazon.com m-commerce store is somewhat limited compared to the parent Amazon.com e-commerce store, and the performance is contingent on CIP and mobile service provider elements that are beyond the control of Amazon.com. For firms that are leaders in e-commerce, the transition to m-commerce would require several adjustments, compromises, and new beginnings. With

<i>Frequently Asked Question</i>	<i>Type of Answer Provided</i>					
	Same as Amazon.com	Limited compared to Amazon.com	Yes or Qualified Yes	No or Not Yet	CIP Limitations mentioned	Contact Service Provider
How is a purchase from Amazon.com Anywhere protected?	x					
The PDA or Internet cell phone does not recognize my Amazon.com username and password. What should I do?	x					
If I connect to your site by entering your URL directly into my cell phone, how are my transactions secured?	x					
How are orders to international addresses (outside the U.S.) from the Amazon.com mobile phone site handled?	x					
How can I find an item that doesn't appear as a top match?		x				
How do I get more information about or purchase an item once I do a search?		x				
How does the service know where to send my purchases?		x				
How do I bid on an auction item?		x				
Can someone else use my PDA or Internet cell phone to shop at Amazon.com?			x			
Can I ship to an address other than the one associated with my 1-Click settings?				x		
When will you have a WML version?				x		
Can I call Amazon.com's Customer Service to place an order?				x		
Why do you display only the top three or five matches for a search?					x	
I received an error message and I was not able to connect to your service. What should I do?					x	x
What type of phone is required?						x
My mobile phone carrier is one of your partners, but I cannot access Amazon.com from this device. Why not?						x

advancing technology and partnering arrangements, the typical m-commerce store is likely to rapidly overcome most of the current limitations of Amazon.com Anywhere.

Companies with m-commerce stores are not merely interested in just the screen but also in the wallet facilities of the CIP device. Typical applications include paying highway tolls, paying for train and airline tickets after occupying a seat, and taking the car through a car wash. Another popular application is online banking, which is up and running at several banks around the world. Some banks in Scandinavia, Belgium, UK, Germany, and even India, are making full-featured "home banking" available via WAP enabled mobile phones.

An issue that has not been resolved is how to collect taxes for m-commerce transactions. Tax rules were already blurred in e-commerce. Because of the mobility, m-commerce blurs the tax regulations even more. Another obstacle has been the security of m-commerce transactions. If the CIP device is a wallet, can someone steal it and make unauthorized purchases of products and services? The three industry heavyweights in the field of CIP devices – Ericsson, Nokia, and Motorola together with Radicchio, a 36-member consortium of technology and telecom firms across Europe, the U.S., and Japan – have agreed on an industry standard for a digital signature that will provide the authentication of users. Such authentication methods are expected to ensure the identity of users for secure mobile e-commerce (Ridley 2000). With secure authentication, users will be able to transact with marketers with whom they do not have established relationship. This, of course, is crucial for m-commerce, which distinguishes itself from fixed version of e-commerce in terms of greater mobility and ubiquity.

The new m-commerce opportunities would be open to anyone who can develop viable concepts based on the mobile versions of the brochure, manual, or store modes (or a combination of these). Successful concepts will be those that take advantage of the location of the users as well as m-commerce extensions of leading e-commerce offerings such as those from Amazon.com. Firms able to extend their models from e-commerce to m-commerce will be able to serve their customers anytime, anyplace.

The initial customer focus of m-commerce services is likely to be twofold: (1) customers using their CIP device as a credit card or a payment system, and/or (2) customers obtaining specific location-based products and services depending on where they happen to be. As we discuss later, the first has the potential to transform the industry structure in the financial services and telecommunications industries while the second has the potential to radically redefine concepts of convenience and service satisfaction.

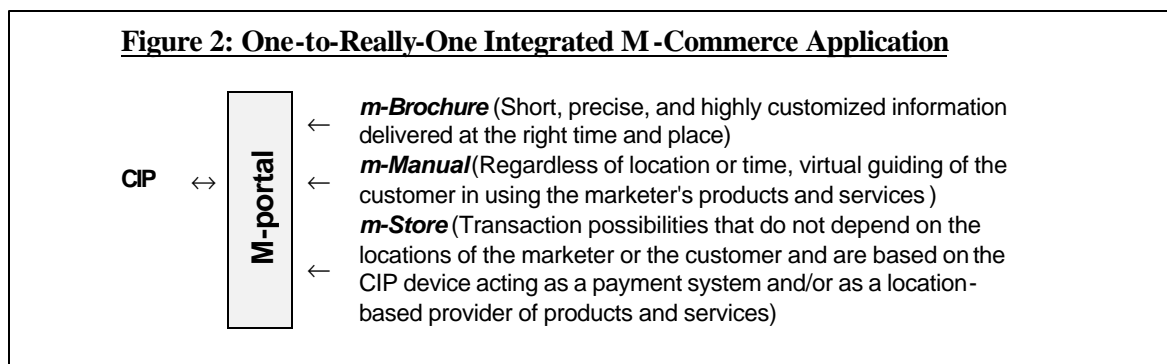
## **Portals**

Companies that have the potential to direct the m-commerce users to WAP sites were up and running before m-commerce enabled CIP devices appeared in the market. From a location-geographic point of view, the more important portal services are those capable of providing Web-based personal information managers (PIMs) to CIP users. Major portal companies have started "versioning" their portals to WAP. Two of the online PIMs – zkey.com and visto.com – have been personalized in ways that enable users to get all their personal information (schedules, contacts, e-mails, and task lists) through desktop terminals as well as via mobile CIPs. Their competitors are other players in the Web-based PIM market such as Yahoo and Excite; the Palm-OS based offerings from players such as Palm, Handspring, and IBM; and Microsoft Windows CE and Pocket-PC based offerings from companies such as Microsoft and the Psion-led Symbian consortium; and Phone.com, the

creator of a WAP mini browser. The advent of m-commerce has added new dimensions and opened opportunities for new players in the portals competitive space.

The initial target segment for such firms are the traveling business people who need their personal updated information regardless of where they are. These customers often have a PDA, a mobile phone, and a laptop already. They are likely to go for an integrated solution consisting of a CIP device and an m-commerce service that reduces the device proliferation. Figure 2 summarizes the one-to-really-one integrated application.

The m-portal serves as the integrational factor. It is a location specific portal where the CIP owner has configured it to be specific in terms of country, city, area, and the business



that the user is visiting. The CIP can automatically shift between locations. To illustrate, consider the case of Kathy, a sales engineer traveling from New York to Copenhagen. Upon arrival at Copenhagen, her CIP device automatically shifts to the Copenhagen Portal and only shows the Brochure, Manual, and Store related links relevant to Kathy and to Copenhagen. When she enters a specific shop in Copenhagen the CIP portal lists goods offered in that shop based on her previous purchase history. After some personal shopping, while taking a taxi to the customer's firm, Kathy checks her CIP device for new e-mail messages. In one of the e-mails, a new purchasing officer at the client firm introduces himself and explains that he will be at the sales presentation that Kathy would make in a few minutes. She checks out the profile of the purchasing officer on the client company's WAP site, adjusts two slides of her presentation located at her own company's Intranet, and leaves the taxi, paying with the CIP device.

The m-portal is an individual specific portal tailored for both personal and professional tasks. In addition to the personalization features evident in the Copenhagen trip illustration, the mportal is PIM-based. It can draw on all of Kathy's contact, schedule, and task information and use such information to automatically generate the content of the portal. The success of the m-portal depends on a continuous-loop personalization. Such continuous-loop personalization makes it very difficult to maintain the distinction between Kathy's private and professional tasks.

## BLURRING OF PERSONAL AND BUSINESS BOUNDARIES

The above section showed that personalization of information together with knowing the location of the customer is crucial for m-commerce. With growth in m-commerce, it will become increasingly difficult to maintain role distinctions between "individual consumers" and "business buyers". It is unlikely that individuals will carry two CIP devices, one for work

and one for private use. The option of having one device but maintaining two different accounts is also cumbersome: it is likely to cause confusion in situations where response time is very short and quick information acquisition and purchase decisions have to be made.

**Table 3: Location and Role -based M -commerce Segmentation**

		Role-based Segmentation	
		On Duty	Off Duty
Location-based Segmentation	Home	1	2
	Office	3	4
	Elsewhere	5	6

At least six location-role combinations of the user can be distinguished (see Table 3):

1. User at home but on duty
2. User at home but off duty
3. User at the office on duty
4. User at the office off duty (doing personal tasks)
5. User away from the home or office but on duty
6. User away from home or office and off duty

These location-roles leave the marketer with six segments (Table 3). In principle, these six can be reduced to three segments – home, office and elsewhere – or two segments – on and off duty – depending on the strategic requirements of the marketer. In practice, m-commerce makes it difficult to tease out such segments.

The questions arise: Is it possible to determine whether the individual is at work (on duty) or not (off duty)? Is it even preferable or necessary to maintain this distinction? In other words, the boundary of the (customer) firm comes into question. If the segmenting, targeting, and positioning strategies for m-commerce are approached using the traditional distinctions between B2B and B2C marketing, this could create confusion and problems. While e-commerce had started straining these distinctions, it was still possible to maintain the broad B2B and B2C separations. With m-commerce things are likely to be different. To meet this boundary-blurring challenge, we suggest an approach that is different from what has worked for e-commerce.

First, we have to understand that m-commerce is the first true application of the Evernet idea – the idea that one is connected and online everywhere and all the time (Friedman 1999). Secondly, the new communication system transforms time and space, the fundamental dimensions of human life. Localities become disembodied from context (Castells 1996) and localities are at the same time the business opportunity for m-commerce. Third, role shifts can occur very rapidly and that roles can get inextricably intertwined. The m-commerce user can be a private consumer one moment and a business person the next moment, or even assume both roles at the same time in the same place without the marketer registering that such changes have occurred. Fourth, people do not compartmentalize their lives. This already was evident in instances such as employees' problems with remembering

which credit card is for business purposes and which one is for private use, or with employees using the office computer to perform private e-commerce activities.

The m-commerce portals will have to serve at least these six segments – possibly more if other segmentation variables are added – in a *dynamic* fashion. Each segment can demand a brochure, manual and/or store m-commerce strategy. In other words, besides the “one-to-really-one integration” task that we discussed previously, the m-portal will have to handle the user’s dynamic specification of the role-location combination *s/he prefers*. In some cases, the marketer will have to dynamically *infer* the role -location specification, depending on the context of the interaction. And in still other cases, the m-commerce *merchant would specify* the segmentation style and the m-portal will have to handle this. In these ways, besides being a portal and a personalization tool, the m-portal will have to become a “dynamic specification host.” To become an effective and efficient specification host, the m-portal needs to gather a lot of valuable, owner-specific information. Firms that have access to such valuable information will be in a position to not just serve their customers well but will even have the power to change the very structure of industries participating in m-commerce.

## TRANSFORMATION OF INDUSTRY STRUCTURES

Not every e-commerce firm, Internet portal, telecommunications service provider, or payment service provider will be able to handle the complex, dynamic segmentation and the constantly changing, interactive mix of specifications of users and merchants. In fact, we expect some major transformations in these industries to occur as m-commerce gains momentum.

When CIP device makers, mobile network operators, and m-commerce service providers all focus attention on the mobile customer as an individual with specific needs, conditions are created for transformation of industry structures. It is unlikely that consumers would want dozens of different businesses to access their individual CIP devices and to send them separate bills. Industries will be reconfigured to handle the new tasks of service and financial integration. Phone companies could become banks, banks could turn into portals, and portals may become service providers. In such environment, competitive intensity would increase because the power would lie in the hands of companies that control the networks. The network operators know the customers’ identities and already have the billing processes in place.

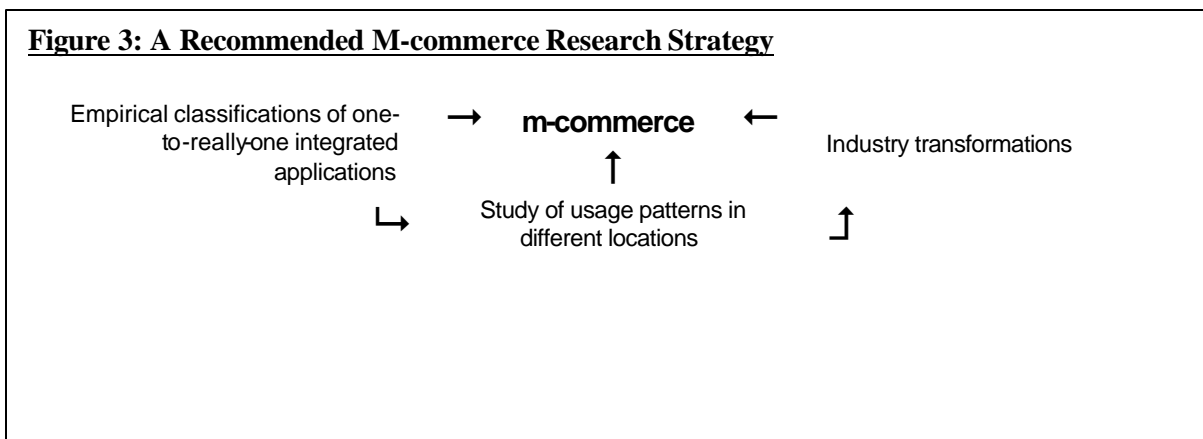
Portal owners will also play a major role because of the fact that they have the prefigured specifications from the CIP owners (users) as well as from the merchants. Finally, device makers such as Nokia, Ericsson, Motorola, and Palm do not want to be just hardware providers in the new m-commerce economy. They are building partnerships to transform into full-fledged m-commerce portals, telecommunications service providers, and even merchants.

Privacy issues have already become very complex in the e-commerce environment. They will acquire new urgency in the m-commerce environment because telecommunications service providers or financial institutions could provide the continuous locatability of the users and the seamless billing that m-commerce applications require.

Just as Amazon.com changed the retail industry, the winners of personalized m-portal and m-commerce competitive battles will transform several industries by getting extremely close to the customer's heart and wallet.

### IMPLICATIONS FOR MANAGEMENT AND FURTHER RESEARCH

This paper has a number of important research and managerial implications. Overall, the research imperative is to deepen the understanding of m-commerce phenomena with more robust theoretical approaches and empirical studies. Research could proceed along the three parallel, interrelated, coherent focuses outlines in this paper: 1) Empirical studies of one-to-really-one integrated applications, 2) Study of m-commerce usage patterns in different locations and 3) Studies of Industry transformations. The research strategy could be to



classify WAP (and other m-commerce) sites as Brochures, Manuals, Stores and Portals. Based upon the classification it is possible to understand the possible usage patterns in different role- and location-based segments. This knowledge can be used to create understanding of the possible industry transformations that will shape the future. Figure 3 illustrates such a research strategy. Besides additional managerial implications the results of such research will make it possible to understand how it is possible to approach and serve the customer as a true individual.

The main managerial implication of m-commerce is the shifting competencies for being a competitive player. Firms that hope to win will have to develop the capability to be very close to the customer and at the same time be very dependent on the infrastructure power players that could potentially end up as portal owners through which all m-commerce will flow. Banks and phone companies seem well positioned for these new m-commerce intermediation roles. This means that marketing efforts will have to not only focus on the customer but also on the m-portal owners who may have to be recognized as strategic partners. Every firm except the m-portal owners will likely play the role of a sub-supplier to the m-portals. These sub-suppliers have to develop strategies for their m-commerce applications (brochure, manual and/or store) that take into account customer segments in terms of roles (off- or on-duty) and location (home, office or elsewhere). Since these customer role specifications will have to be very dynamic, strategies and operational tactics will have to seamlessly blend with each other.

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